

## CLAIMS

1. (Canceled).
- 5 2. (Canceled).
3. (Canceled).
4. (Canceled).
- 10 5. (Canceled).
6. (Canceled).
- 15 7. (Canceled).
8. (Canceled).
9. (Canceled).
- 20 10. (Canceled).

See amendment B  
paper # 9  
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11. (Amended) A method for enabling a program written in untrusted code to access a native operating system resource, comprising the steps of:

- 5 having a trusted login service listen on a named pipe for login requests;
- responsive to a login request, wherein the login request contains an identifier for a uniquely-named response pipe, having the trusted login service request a native operating system identifier;
- 10 returning to the program via the uniquely-named response pipe the native operating system identifier, wherein the uniquely-named response pipe and the named pipe are not identical;
- in an authentication framework, using the native
- 15 operating system identifier to create a credential object; and
- using the credential object to login to the native operating system to enable the program to access the resource.

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12. (Amended) The method as described in claim 11 wherein the native operating system supports named-pipe servers.

13. (Amended) The method as described in claim 12 wherein the program is written in an interpreted language.

5 14. (Original) The method as described in claim 11 wherein the authentication framework is a pluggable authentication mechanism (PAM) having a set of application programming interfaces (APIs).

10 15. (Original) The method as described in claim 14 wherein the set of application programming interfaces include login, commit, abort and logout APIs.

16. (Amended) The method as described in claim 14  
15 wherein the authentication framework is compliant with an authentication service of a virtual machine.

(12)



17. (Amended) A computer program product in a computer readable medium for enabling a program written in untrusted code to access a native operating system resource, the computer program product comprising the  
5 steps of:

means for listening on a named pipe by a trusted login service for login requests;

means responsive to a login request for requesting a native operating system identifier by the trusted  
10 login service, wherein the login request contains an identifier for a uniquely-named response pipe,;

means for returning to the program via the uniquely-named response pipe the native operating system identifier wherein the uniquely-named response  
15 pipe and the named pipe are not identical;

in an authentication framework, using the native operating system identifier to create a credential object; and

using the credential object to login to the native  
20 operating system to enable the program to access the resource.

18. (Amended) The computer program product as described in claim 17 wherein the program executes in a virtual machine supported by the native operating system and the native operating system supports  
5 named-pipe servers.

19. (Amended) The computer program product as described in claim 17 wherein the program is written in an interpreted language.  
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20. (Amended) The computer program product as described in claim 17 wherein the authentication framework is compliant with an authentication service of a virtual machine.



21. (Amended) An application server, comprising:  
a set of programs that are supported by a virtual  
machine that is supported by a native operating system;  
a processor running the native operating system  
5 providing support for executing the set of programs;  
and

means for enabling each program in the set of  
programs to run in an operating system thread while  
impersonating a different native operating system user  
10 in accordance with a token that was created during a  
login operation in the native operating system and that  
was associated with a program while the program was  
acting as a named-pipe server to listen for a login  
response on a named pipe that was uniquely created for  
15 a login request to obtain the token, wherein the login  
request contained an identifier for the named pipe.

22. (Amended) The application server as described  
in claim 21 wherein the native operating system  
20 supports named-pipe servers.

(2)

23. (Amended) The application server as described  
in claim 21 further including a server application  
executed by the processor for receiving a request for  
service from a client machine and initiating execution  
5 of a program in the set of programs in a given  
operating system thread.

